System Design Document

for

COSC Club Event Management System

Prepared by

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Course:	*COSC 3506*
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Contents

1 Introduction

1.1 Overview

The System Design Document describes the system requirements, operating environment, system and subsystem architecture, files and database design, input formats, output layouts, human-machine interfaces, detailed design, processing logic, and external interfaces.

1.2 Purpose and Scope

The purpose of this document is to describe the design of the CCEMS described in the CCEMS software requirements and specifications document. The designed system is developed to provide a better management tool for the COSC club.

1.3 Project Executive Summary

This section provides a description of the project from a management perspective and an overview of the framework within which the conceptual system design was prepared.

1.3.1 System Overview

This document was created to provide a description of the technical design for the COSC club system. The primary focus of the project was to create a blueprint of which will be used to assist the implementation of the system. CCEMS is an application created to decrease potential errors by ultimately facilitating the work of the leaders. It will provide the managers with a tool that allows them to keep information and records of the club in a safe and organized space. CCEMS is an application built in JAVA and implemented as a desktop GUI. This high level software design contains various tools that provide a thorough overview of what is being made

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1.3.2 Design Constraints

The planning, design and implementation of the system must be completed by the end of the Winter term 2022. All group members must work together to complete the project by the given deadline. Challenges may rise since all group members are beginners when it comes to software development.

1.4 Document Organization

The first section of the document is the system architecture which consists of a domain diagram, class diagram, and sequence diagram. A domain diagram is a visual representation of classes and objects within a domain. A class diagram defines both the *structural and functional components of an object. A sequence diagram describes the order and methods that objects work in unison. The second section of the document provides an overview of the database's design as well as its various components. The third portion of the document describes the human-machine interface. This previews how the screen of the application will actually look. It also provides details about the ways in which users will input data, as well as what kinds of output, (or feedback), the system will return to the user. The fourth and final section of the document will list important deadlines leaving up to and including the end product.*

1.5 Glossary

CCMT	*COSC Club Management Team*
CCEMS	*COSC Club Event Management System*
COSC	*Computer Science*
FRD	*Functional Requirements Document*
RTM	*Requirements Traceability Matrix*

2 System Architecture

2.1 Domain Diagram

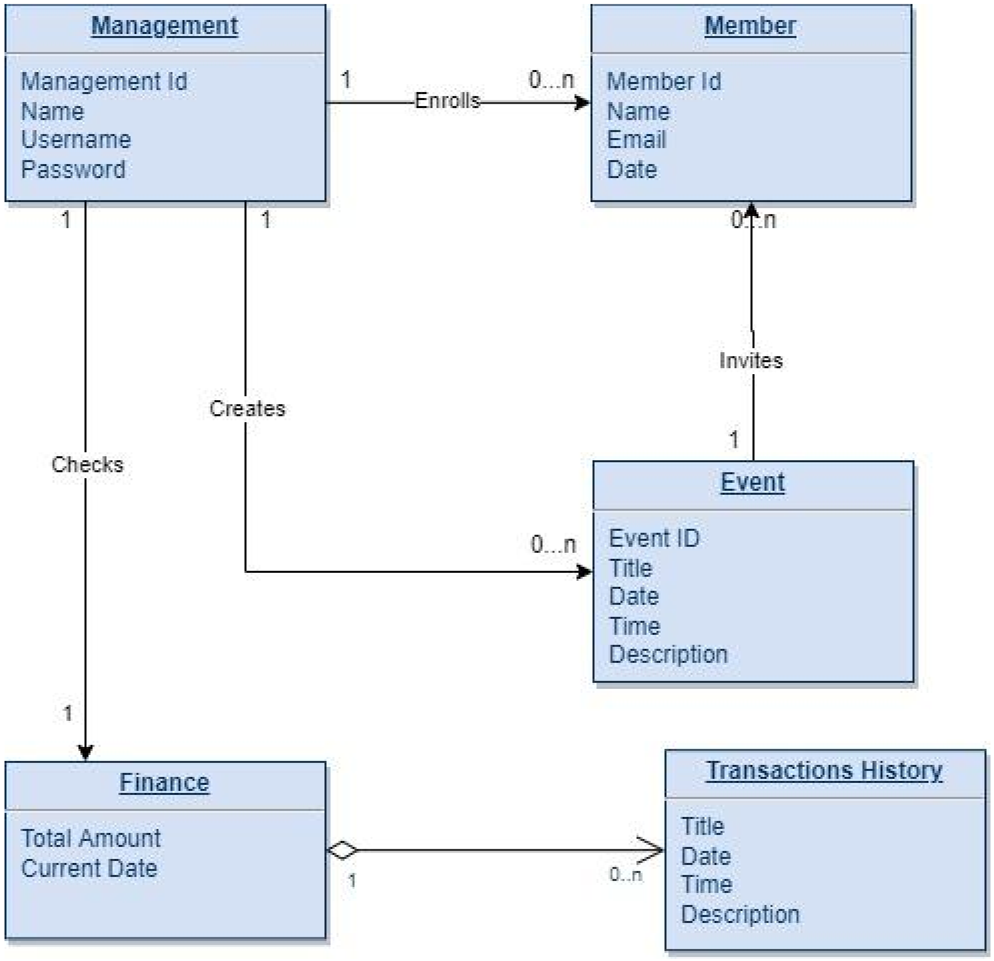


Figure 1: Domain Model

2.2 Class Diagram

2.2.1 Management Class

This class represents the user of the system, which is the CCMT. This class interacts with all the other classes and makes use of various methods in the other 4 classes. It enrolls members, checks finances, creates and removes events. It also is responsible for the login and logout functionality.

2.2.2 Member Class

This class is a data structure containing the information of a Member. It's associated with Management because Management enrolls members. It has methods that allow information of a Member to be extracted or printed out.

2.2.3 Event Class

This class is a data structure containing the information of an Event. It's associated with Management because Management creates and deletes events. It has methods that allow information on an Event to be extracted or printed out.

2.2.4 Finance Class

This class represents the Finance aspect of the system. It is aggregated to the Transaction Class, because the Finance has a list of past transactions. It is also associated with the Management class because Management is supposed to check Finance and create Transactions.

2.2.5 Transaction Class

This class is a data structure containing the information of a Transaction. It is aggregated to the Finance Class, because the Finance has a list of past transactions. It has methods that allow information on an Event to be extracted or printed out.

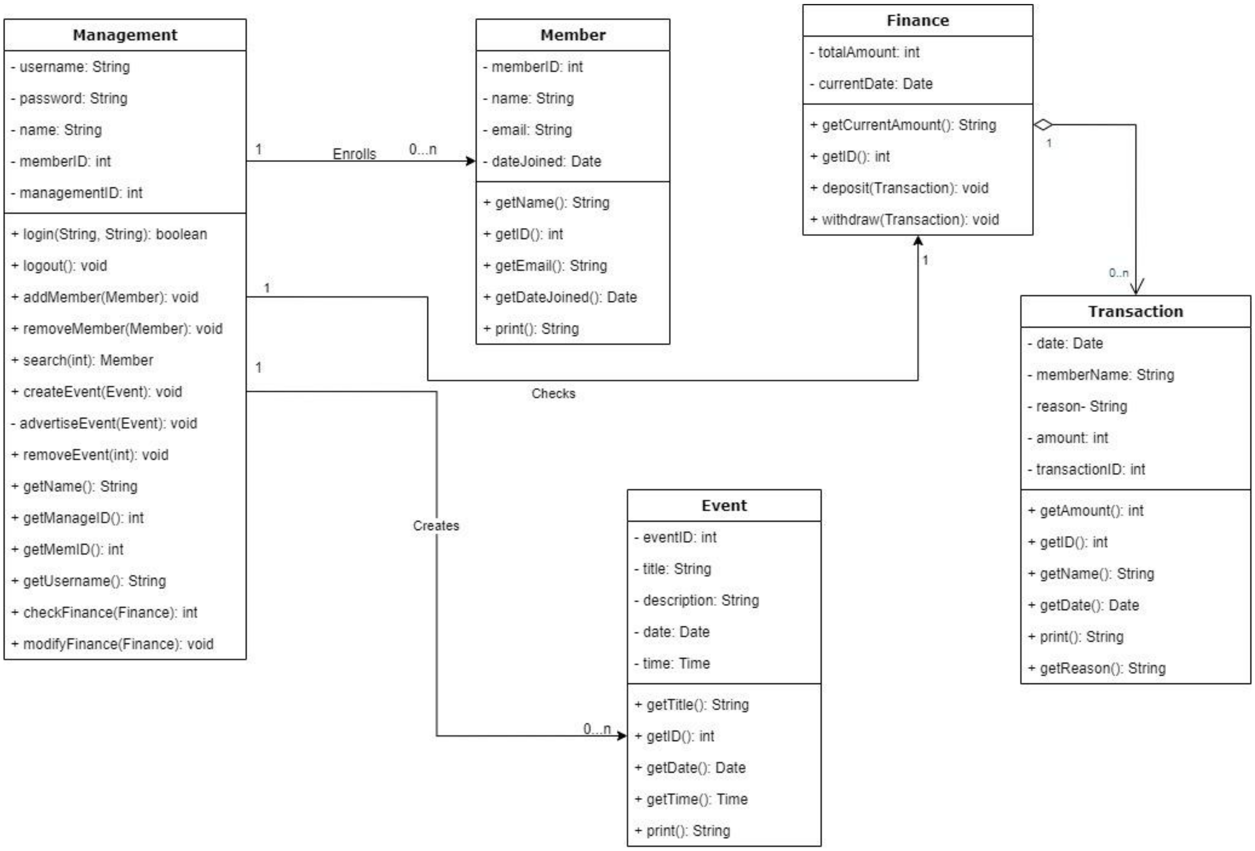
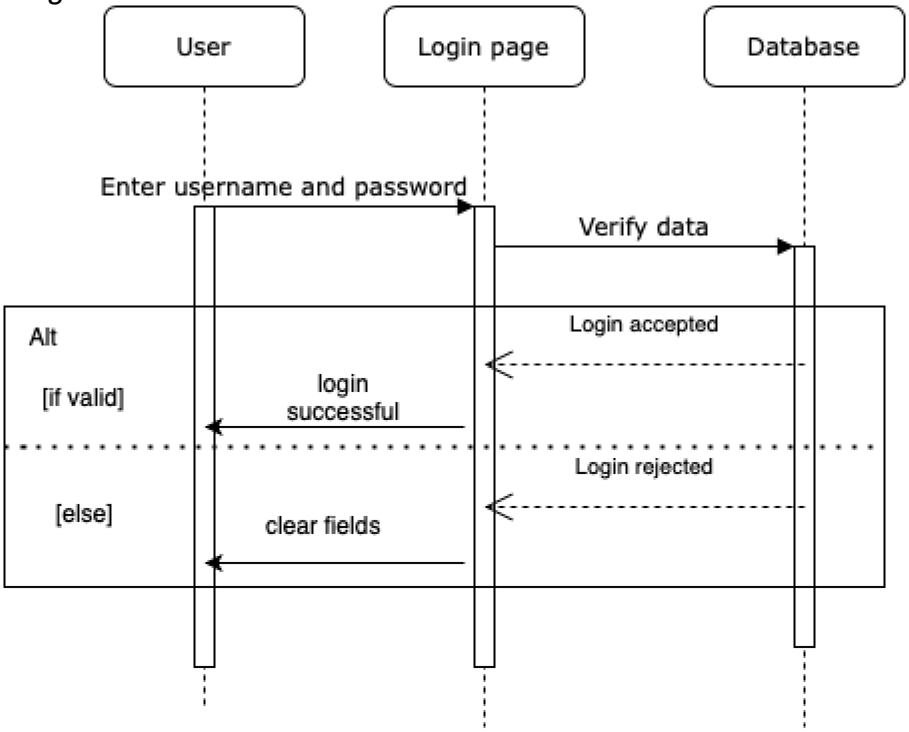


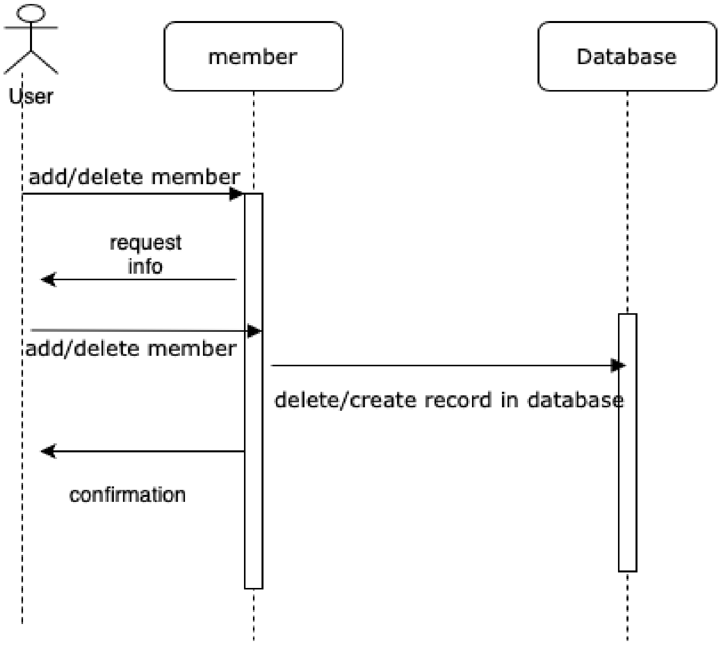
Figure 2: UML Class Diagram

2.3 Sequence Diagrams

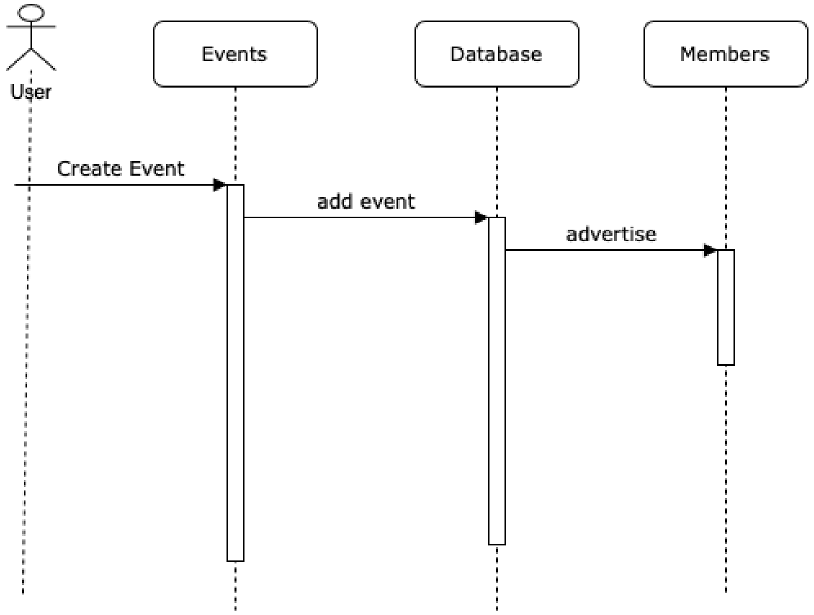
1.Login



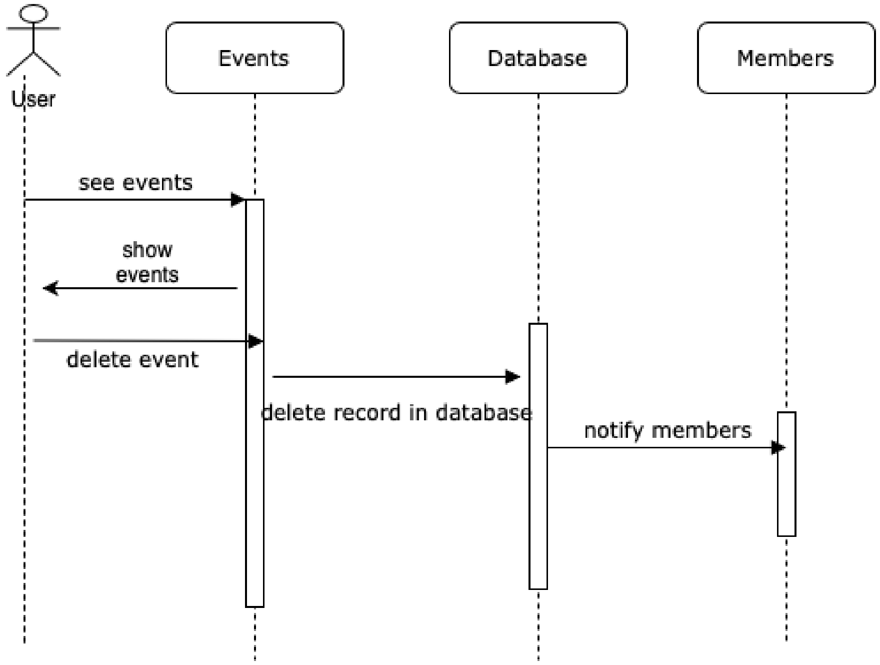
2. Add and Delete members



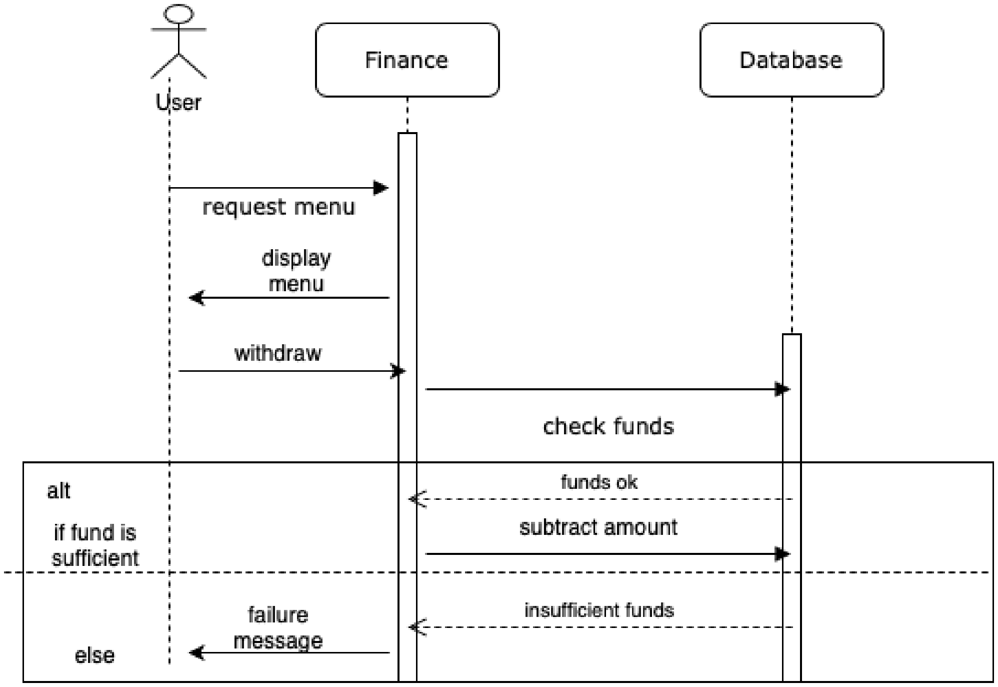
3. Create Event



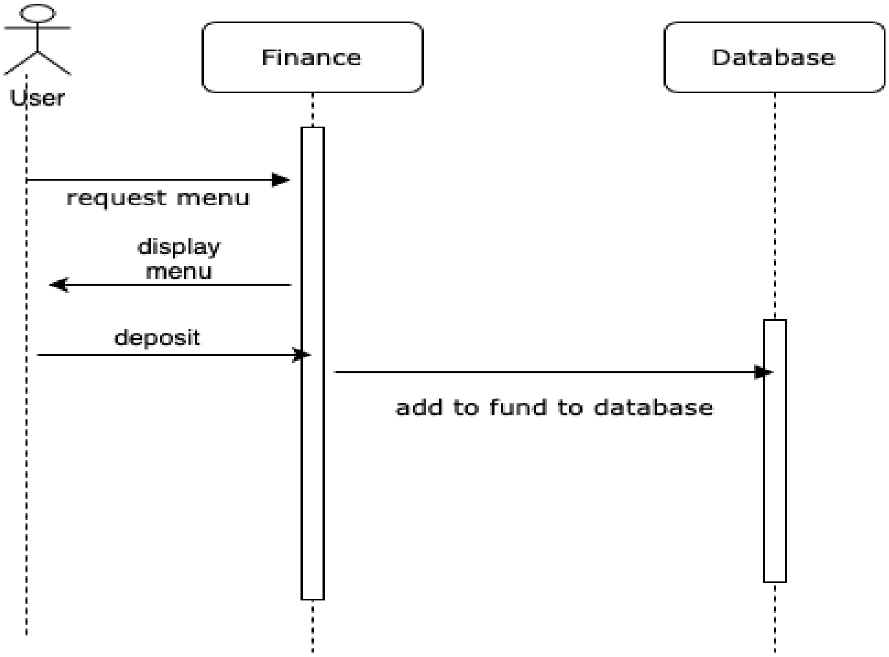
4. Delete Event



5. Check Finance and Withdraw



6. Deposit



3 Database Design

3.1 Database Description

A database is utilized to keep the system organized while also allowing for information to be easily accessible. We started by gathering data that would be beneficial to include in the database. We tried to keep each table in the schema consistent with its corresponding Java class. Next, we laid out a visual representation of the database. In order to keep the data consistent from one record to the next, we processed to assign appropriate data types. This step helped us in reducing errors. We then assigned attributes, such as primary keys, to uniquely identify a given entity in each table. In doing so, we were able to reduce duplication. In creating this database, the system will overall improve the quality and consistency of information for the CCEMS.

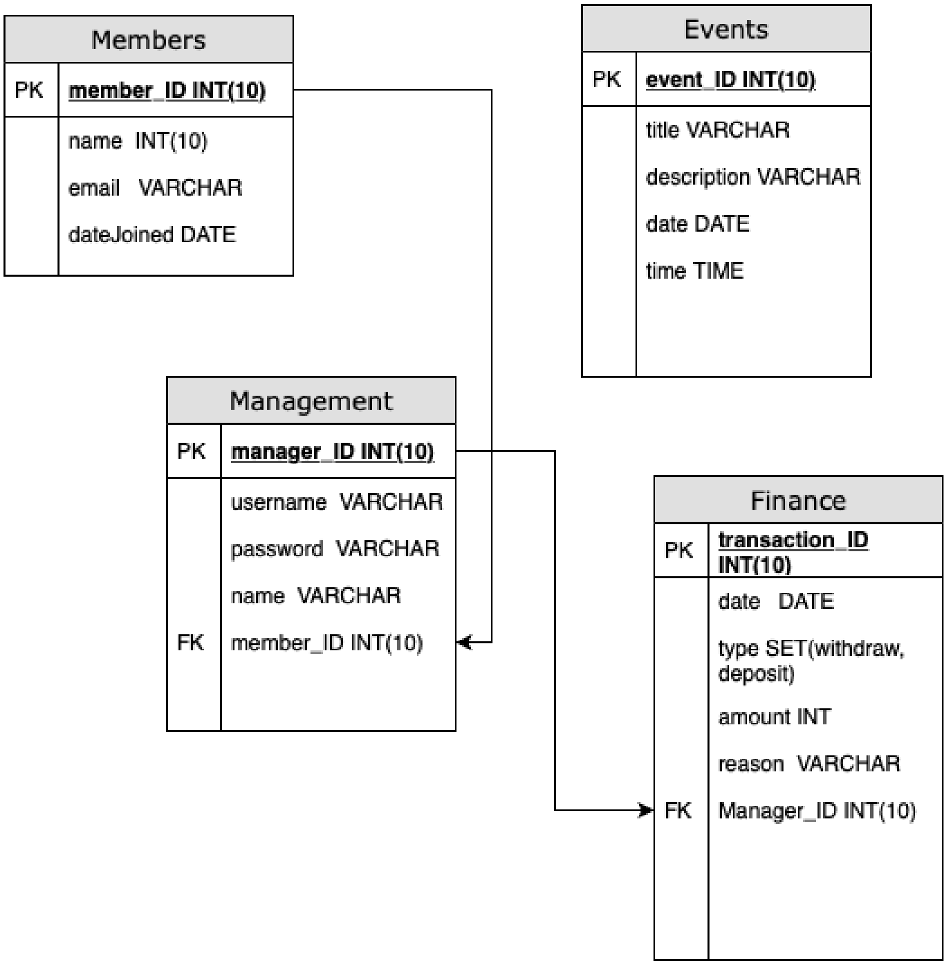


Figure 9: Database Design

4 Human-Machine Interface

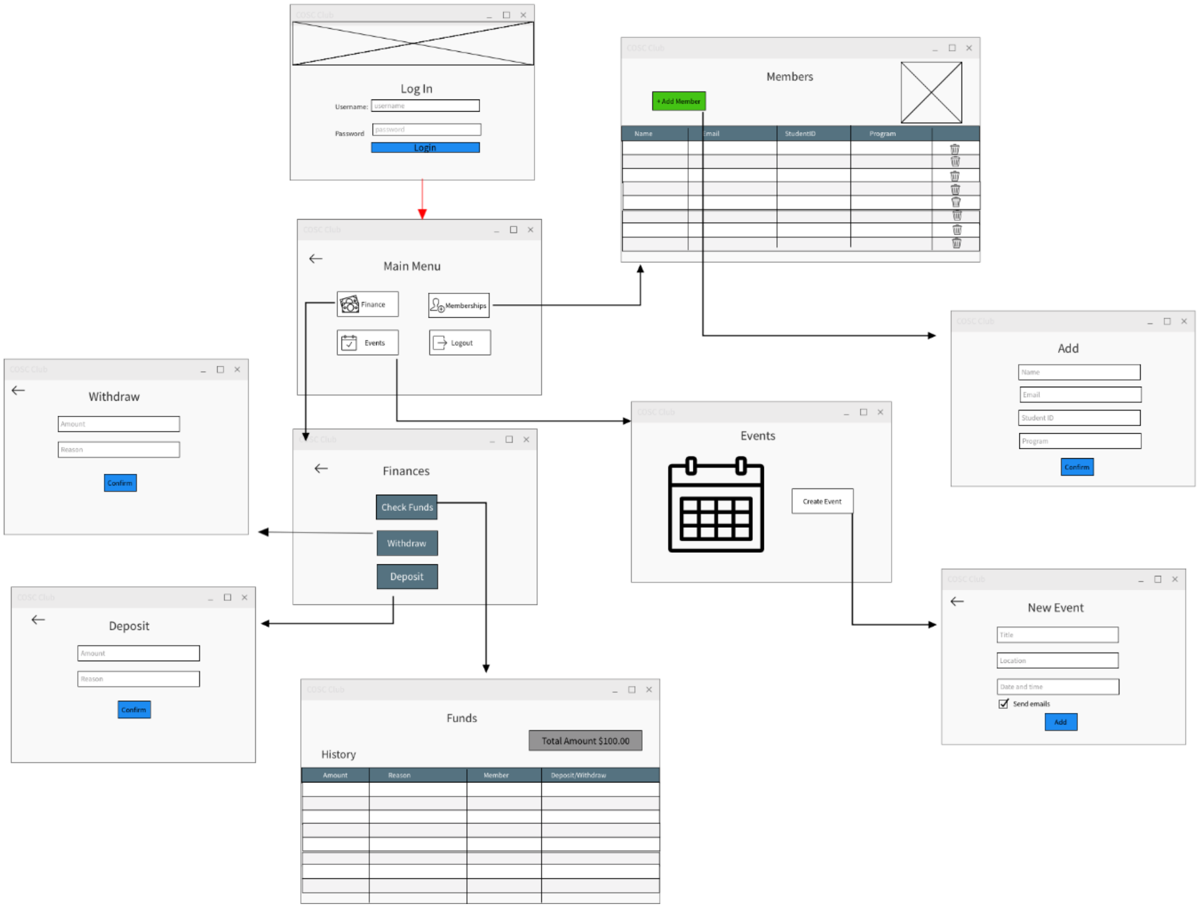


Figure 10: Human-Machine Interface

4.1 Inputs

4.1.1 Login Inputs

The inputs for the login will be the user's username and password

4.1.2 Member Inputs

The inputs for the member-related pages will be the information on the members that the user wants to create. This information includes; member id, name, email, and the date that they joined.

4.1.3 Event Inputs

The input for the event-related pages will be information about the events. This information includes; the event id, title of the event, date and time of the event and the event description.

4.1.4 Finance Inputs

The inputs for the finance-related pages will be information about the withdrawal or deposit that was made. This includes: the amount deposited or withdrawn, the reason for the withdrawal or deposit, the date of the transaction, and the amount of money added or removed from the account

4.2 Outputs

The output for all the login input will be access to the system if the correct information has been provided. For the other inputs, the output will be a new record of information that will be added to the database and displayed on the screen.

A GROUP LOGS

A.1. Meeting Minutes

A.1.1. March 10, 2022, 3:00 - 4:00pm

Location: *Online via Zoom*
Attendees: *Maria DeMelo, Emma Ude,Erfan Razavi*

Agenda Item 1: *What specifically do we plan to do for this assignment?*
We're supposed to design the classes, variables and stuff. Emma suggests we do domain modeling and then figure out the class diagrams. We're not sure what exactly we'll submit. Maria agrees with the domain modeling, and then skips to Module 7 and goes to Design modeling. Maria will send him an email about it.

Agenda Item 2: *How do we split the work?*
We could mix and match. So we each make a domain model and then pick from each. It doesn't have to be 100% accurate.

Agenda Item 3: *What are our deadlines for the assigned work?*
Assignment due Wednesday. Finish the domain models Saturday and Sunday, then be done with the class diagrams by Wednesday.

A.1.2. March 15, 2022, 3:00 - 5:30pm

Location: *In person*
Attendees: *Maria DeMelo, Emma Ude*

Agenda Item 1: *Figure out the System Architecture*
Maria and Emma brainstormed on the system architecture using various diagrams. They then split the work for the assignment amongst themselves

A.2. Group Activities

- *Maria emailed the professor to inquire about the assignment instructions*
- *Emma and Maria brainstormed the system architecture together*
- *Maria worked on the Sequence Diagrams and the Database Design*
- *Emma worked on the Domain Model and the Class Diagram*
- *Maria worked on the introduction of the document and the description of the database design*

A.3. Additional Communication Information

The group’s main mode of communication is a Whatsapp Group chat. We talk there regularly between meetings to discuss issues with our work. We also use Whatsapp to pick a time for our meetings. We used this group chat to check in with each other at each stage of the assignment to ensure we were all on the same page.

B References

Sequence Diagrams-
https://www.lucidchart.com/pages/how-to-draw-a-sequence-diagram-in-UML
Documentation - https://arxiv.org/pdf/1005.0169.pdf
Class Diagram - https://www.lucidchart.com/pages/uml-class-diagram
System Design- https://en.wikipedia.org/wiki/Systems_design
Database - https://www.lucidchart.com/pages/database-diagram/database-design

Reference Documents:

- *Architecture and User Interface Design for COSC Club Event Management System*
- *Software Requirements Specification for COSC Club Event Management System*